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Volume 22 | Issue 2

Article 6

1960

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Recommended Citation

Raum, Earle S. (1960) "Large Animal Ectoparasite Control," *Iowa State University Veterinarian*: Vol. 22 : Iss. 2 , Article 6.

Available at: https://lib.dr.iastate.edu/iowastate_veterinarian/vol22/iss2/6

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Large Animal Ectoparasite Control

Earle S. Raun, Ph.D.

RECENT RULINGS by the Food and Drug Administration make it more imperative than ever that practitioners use, sell, and recommend proper insecticides for the control of ectoparasites. Very few of the commonly used insecticides have a tolerance established by the FDA in meat and dairy products.

What is a tolerance? It is the amount of material permissible in the food product under existing regulations. Insecticides actually fall into three categories: "Zero tolerance" (none permissible), "established tolerance" (small amount permissible), and "none required".

Among the facts utilized by the FDA in its rulings on a given insecticide we find: (1) toxicity of the particular insecticide and its metabolites to man, (2) storage of the insecticide in the human body and in what forms it is stored, (3) residual amounts in the treated animal's meat or milk after use of the insecticide, (4) length of time the residue remains in the treated animal's products.

Many editorials have been written concerning the pro's and con's of the FDA and its rulings, but the fact remains that this organization is charged by law with protecting the nation's food supply from deleterious substances. Insecticides are meant to kill. True, they are meant to kill insects, but with indiscriminate use they can be hazardous to man and other forms of life.

You, as a practicing veterinarian, are a leader in your community. Your words are taken as "gospel". You have, therefore,

a responsibility to your clients and your neighbors to give the RIGHT answer when your advice is asked in either a professional or a non-professional way. Particularly is this true in areas of knowledge in which you should be up to date. Insecticides and their use on livestock are in that area of knowledge.

This article will attempt to bring you up to date on the recommendations for large animal ectoparasite control, as of the moment. Continuing research is uncovering new facts, however, and recommendations and tolerances are continually changing in the light of these new facts. The Insect Information Letter, which you receive periodically from the Iowa State University Department of Zoology and Entomology, will help you stay up to date.

Iowa State University recommendations take into account a number of facts; effectiveness of a material, FDA rulings, toxicity, ease of use, availability of a material, and cost. You may find that ISU recommendations differ slightly from those of surrounding states. Differences in cost and availability will largely account for these.

CATTLE ECTOPARASITES

Cattle grubs: The control of cattle grubs has received a big boost from the discovery of systemic insecticides. Grub control is now possible to achieve before the damage to the hide and loin area occurs. The one systemic material which farmers in Iowa will find most usable, at the present time, is Co-Ral (Chemagro Chem. Corp., Kansas City, Mo.), a polyphosphate. Applied as a spray as soon after the end of the fly season as possible, it is absorbed

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through the skin and systemically kills the young grubs wherever they are in the animal's body. Advantages of Co-Ral include 90 to 99 percent control of grubs, fall application before cold weather, control with one application, and excellent louse control as a bonus. Many farmers, after using Co-Ral for a season, have stated that the louse control alone is worth the extra cost. Disadvantages include a material cost of 50 to 85 cents per head. Also, the material should not be used on lactating dairy cows because it appears in the milk.

Mix Co-Ral at the rate of 4 pounds of the 25 percent wettable powder in each 25 gallons of water. One gallon will treat one to two head, depending on the size of the animal. Spraying equipment pressures should approximate 250 pounds if possible. If this high pressure equipment is not available, 80 to 100 pounds pressure will be adequate provided ½ pound of household detergent is added to each 25 gallons of spray.

For grub control on dairy cattle, rotenone dusts applied every 30 days during the time the grubs are present in the backs of the cattle will do an adequate job. Such a treatment should be a must in area control programs where farmers have agreed to treat all cattle in a given area to eliminate "gadding" of cattle caused by the adult grub flies during the summer.

Cattle lice: As you know, cattle may be infested with either the blood sucking or the chewing lice. Either type may be controlled by the cattle grub spray of Co-Ral described above. Other materials approved for spray-use on beef cattle include 0.5% toxaphene, 0.5% methoxychlor, 0.5% malathion, and 0.3% Korlan (Dow Chem. Co., Midland, Mich.). None of these materials should be used on lactating dairy cows, nor should they be used on cattle to be slaughtered within a 60-day period.

Many farmers are going to the use of cattle oilers and back-rubbers for the control of cattle lice. These do a good job of keeping louse populations below economic levels at a reduced labor cost. One thing to keep in mind, however, any automatic

currying device or back rubber which affords the animal a solid, sharp-edged rubbing surface is likely to crush any cattle grubs present in the animal's back, and may cause an anaphylactic shock, or abscess formation. We feel that back-rubbers of this type should be discouraged during the cattle grub season.

Approved materials for use in back-rubber applications for louse control include 5% toxaphene, 5% methoxychlor, 5% DDT, 3% malathion, and 1.3% Korlan.

Controlling the louse populations on dairy cattle requires the use of rotenone dusts or pyrethrins sprays, applied twice nine days apart. None of the materials other than these two, can be used on lactating cows due to the appearance of the material in the milk.

Cattle fly control: We have traditionally had only two important flies feeding on cattle during the summer months, but may be threatened by a third species this coming year. The two old acquaintances are the stable fly and the horn fly. The threat from the east is the face fly, *Musca autumnalis*.

The horn fly is the first to appear on our cattle each spring. They cluster on the backs of the cattle, feeding and resting alternately. Untreated beef herds sometimes support a horn fly population of more than 1000 per head.

The stable fly sucks blood from the animal, requiring about two minutes to obtain a blood meal, and then it flies off to rest on fences, barn walls, or vegetation. At one time you may be able to count as many as 100 stable flies per head on untreated beef herds. From the standpoint of damage, numbers, and disease carrying, the stable fly is by far the most serious pest.

The face fly is not a blood feeder. It feeds on the mucous secretions around the eyes, nostrils, and other body openings. Its damages are caused by annoyance and perhaps its ability to carry disease.

The control of flies on animals differs considerably between beef and dairy herds. Beef cattle on pasture will be protected from the horn fly through the

use of the back-rubber, utilizing one of the same chemicals described under louse control. Or the louse control sprays may be used for horn fly control, applying one of them every two to three weeks during the summer months. These treatments will not do an adequate job of controlling the stable fly, however.

Controlling flies on cattle in the feed lot is a different matter. Stable flies become even more important in and around the feed lot than they are on pastured cattle. The same treatment for the animals can be used, but residual sprays on the fences, undersides of feed bunks, barn walls, and even surrounding vegetation are required for control of the stable fly. Chemicals for these residual treatments are diazinon, malathion, or Korlan. Diazinon will be effective for the longest period of time, lasting about two weeks in open areas.

Dairy cattle fly control is limited to the pyrethrin-type fly sprays applied to the animals every day. This application will do an excellent job of controlling all types of biting flies on the cows. There is federal approval for the use of methoxychlor malathion dust on the backs and shoulders of dairy cattle, but this treatment will control only the horn fly and not the more important stable fly. The insecticides listed above for residual area treatments may be used in the dairy barn as well as other livestock buildings.

The control of face flies apparently requires the daily use of the pyrethrin sprays on the heads of the animals. This means that beef cattle are going to continue to be plagued by this pest. Dairy cows will be protected by the daily sprays if particular attention is paid to the "face" of the cow.

Swine Ectoparasites

Mange and lice: The most important pests of swine are the various mange-causing mites, and the blood-feeding louse. We have been advocating a preventive treatment for these pests. In one group of sows, which showed no signs of mange or lice and which had received no chemical treatment for six months, an examination revealed the presence of *Sarcoptes scabiei* in the ears of almost 100 per cent of them.

This means possible transmission of the mites to their litters.

It is our conviction that sows should be treated whether or not symptoms of mange or pediculosis are present. The treatment should be done either about 30 days before farrowing, or as the sow is being put into the farrowing stall. Lindane, (gamma Benzene Hexachloride, U.S.P.), as a 0.05% spray, applied at this time, will control both the mites and the lice, preventing the infestations on the pigs. The same chemical added to the wash water as the sow goes into the stall also seems to do an adequate job.

Sheep Ectoparasites

Sheep scab: The problem with "wet mange", caused by the mite *Psoroptes equi* var. *ovis*, continues to be serious here in Iowa. Many farm flocks have required the quarantine-dip activities. Much of the problem could be prevented if farmers would be certain that any new animals they obtain are dipped before they are brought to the farm. This applies to animals from within Iowa as well as from other states, and to animals bought not only in the sale barn but from other sources.

Approved dips now may contain either lindane or toxaphene. Be sure you report any sheep scab cases that you diagnose to the State Veterinarian's office. Even though you are afraid you will lose a client by such reporting, the livestock industry of your area and the state will benefit from the supervised quarantine and dipping which is required of such cases.

Sheep keds (ticks): *Melophagus ovinus*, the wingless, blood-sucking fly of sheep, is widespread. It can cause serious losses to young lambs. It reduces the quantity and quality of wool from the ewes. There is no reason it should continue as widespread as it is, with the many modern insecticides which will kill it. An annual dusting, spraying, or dipping with DDT, toxaphene, rotenone, malathion, Korlan, or Co-Ral will do the job. Shearing time affords an excellent opportunity for this control program.

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